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10 April 1981

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 157

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SOCIALIST NEWS AGENCIES SIGN ACCORDS

Accords Signed

BK271030 Phnom Penh SPK in French 0420 GMT 26 Mar 81

[Text] Phnom Penh, 26 Mar (SPK)--The heads of delegations of the news agencies of Kampuchea (SPK), Vietnam (VNA), Laos (KPL) and the Soviet Union (TASS) have signed documents on the results of their meeting in Ho Chi Minh City on Wednesday [25 March].

The four delegations, led respectively by SPK acting director general Em Saman, VNA director general Dao Tung, KPL acting director general Chanthon Thieng Thiepvongsa and TASS director general Sergey Losev, have been meeting since 22 March to discuss the intensification and expansion of the cooperation between the three Indochinese agencies and TASS, as well as the cooperation between the four agencies and other socialist countries.

The signing was witnessed by Vietnamese Vice Premier Huynh Tan Phat and Ho Chi Minh City People's Committee Vice Chairman Le Quang Chanh.

Also present was Sok Sen, PRK consul general in Ho Chi Minh City.

On the same day, SPK acting director general Em Saman signed a protocol with TASS director general Sergey Losev on technical assistance from TASS to SPK.

At their meeting, the delegations of the four news agencies unanimously noted that the documents of the 26th CPSU Congress and the contents of the talks between Leonid Brezhnev, Pen Sovan, Le Duan and Kayson Phomvihan on this occasion, and of their previous talks, constitute a fundamental orientation for their information task and their fraternal relations.

The basic information task of the four agencies is aimed at supporting their respective country's political tasks in a bid to build a new life, consolidate peace and cooperation between nations, affirm the right of the world's peoples to develop themselves independently, promote good neighborly relations, maintain peace and stability in Southeast Asia and resolutely oppose the policy of war threats, sabotaging detente, interfering in the internal affairs of other countries, opposing socialism, distorting the nature of the movements of national liberation and independence, and of sowing division between the socialist countries and the national liberation movement. Such a policy is being pursued by U.S. imperialism, Beijing expansionism and other international reactionary forces.

The four delegations agreed to help each other so that each agency can fulfill its duties as a vanguard force in the ideological work in its respective country.

They highly appraised the significance of this first quadripartite meeting that took place just after the 26th CPSU Congress, at the time when the LPRP is celebrating its 26th founding anniversary, when the VCP is preparing its fifth congress and when important political events are occurring in Kampuchea.

On this occasion, the director general of TASS stressed that his agency will continue to fulfill its international obligation toward the sister agencies of Kampuchea, Laos and Vietnam.

Delegations Meet

OW251715 Hanoi VNA in English 1632 GMT 25 Mar 81

[Text] Hanoi VNA March 25--The minutes of the meeting of the delegations of the news agencies of Vietnam (VNA), Laos (KPL), Kampuchea (SPK) and the Soviet Union (TASS) were signed in Ho Chi Minh City today.

TASS was represented by its general director Sergey Losev, KPL by its acting general director Thieng Thiepvongsa, SPK by its acting general director Em Saman, and VNA by its general director Dao Tung.

The signing was witnessed by Vice Premier Huynh Tan Phat; Le Quang Chanh, vice chairman of the Ho Chi Minh City People's Committee, and the Soviet and Kampuchean consuls general in the city.

The four fraternal news agencies agreed to expand cooperation and mutual assistance in various fields. They also agreed to enhance solidarity and coordination with other socialist news agencies and the news agencies of all countries struggling for national independence, democracy and social progress.

Also today, general director Sergey Losev signed bilateral agreements with the KPL acting general director and with the SPK acting general director on Soviet technical assistance to these two agencies. A similar agreement had been signed earlier in Hanoi between TASS and VNA.

CSO: 5500

BRIEFS

PRC, YUGOSLAVIA COOPERATION PLAN--Beijing, March 30 (XINHUA)--A radio and television cooperation plan for 1981-1982 between China and Yugoslavia was signed here today. The document was signed by Zhang Xiangshan, director of the Central Broadcasting Administration of China, and Stojan Dimovski, leader of the Yugoslav radio and TV delegation and a member of the Executive Committee of the Association of Yugoslav Radio and Television Organizations. The Yugoslav guests arrived in Beijing March 23. Zhang Xiangshan also held talks with the Yugoslav delegation on future broadcast cooperation between the two countries. [Text] [OW301634 Beijing XINHUA in English 1532 GMT 30 Mar 81]

CZECHOSLOVAKIA, POLAND, ROK TIES--Telecommunication services with Poland and Czechoslovakia will be inaugurated tomorrow, the Ministry of Communications said yesterday. This will leave Albania and Communist China, among the nonhostile socialist countries, yet to be reached by telecommunication from the republic, the ministry said. Efforts will continue to establish telephone service with these areas, it added. The imminent telephone linkage with Poland and Czechoslovakia is a result of efforts the ministry has made in line with the government's June 23, 1973, open-door foreign policy guidelines, the ministry explained. The nation has so far established telephone and telegraph services with 16 Soviet bloc countries. It also has a telecommunications service with Cuba. Charges for international long distance calls to Poland and Czechoslovakia will be 8,220 won for the first 3 minutes, with 2,060 won to be charged for each additional minute, in the case of person-to-person call. The station-to-station charges will be 6,180 won for the first 3 minutes, with 2,060 won to be charged for each additional minute, the ministry said. [Text] [SK310335 Seoul THE KOREA HERALD in English 31 Mar 81 p 8]

CSO: 5500

BRIEFS

LAKSHADWEEP SATELLITE STATION--New Delhi, March 8 (UNI): A domestic earth satellite station has been commissioned at Kavarathi in Lakshadweep for providing better radio-telephone links with the island. This was disclosed at a meeting of the eight-member advisory committee of the Union territory held here yesterday. The Union home minister, Mr. Zail Singh, presided. The minister, of state for home affairs, Mr. Yogendra Makwana, was also present. The newsmen were told that the station was functioning since November. Mr. Zail Singh said the Centre proposed to purchase an all-weather vessel to replace MV Laccadives. A committee was already set up to look into revision the fate structure and related matters. The home minister said a survey would be undertaken by the department of tourism to create the infrastructure for attracting more tourists to the island. [Text] [Bombay THE TIMES OF INDIA in English 9 Mar 81 p 7]

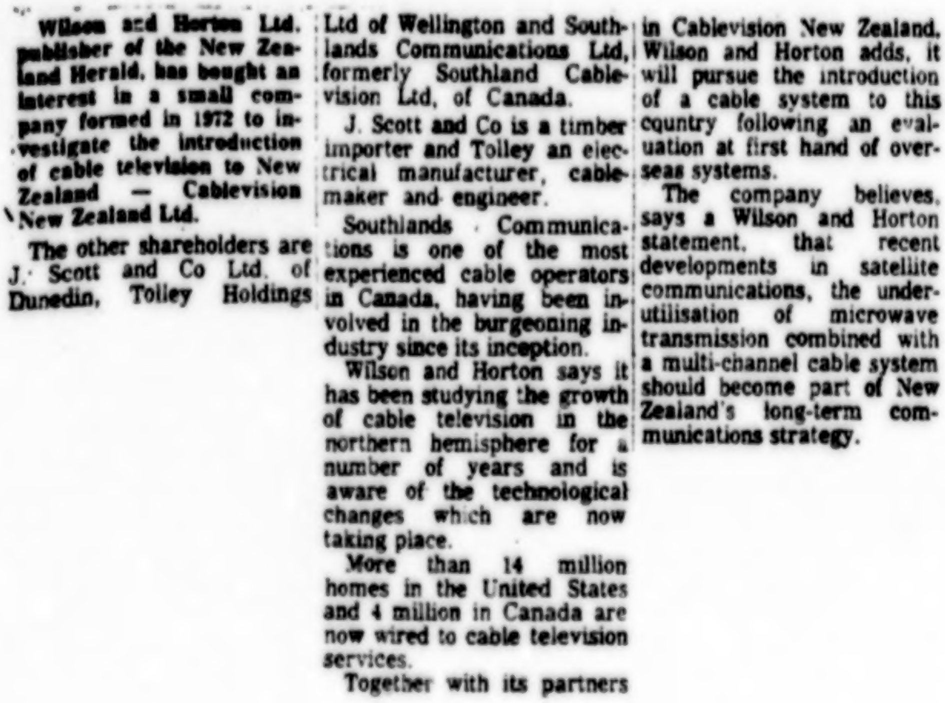
SATELLITE COMMUNICATIONS LINK--The government is planning to link all Indian missions abroad through a satellite communications system to keep them informed of developments inside the country and abroad within the shortest possible time. Already Indian missions in North and South America have been linked by a satellite system. [Text] [BK251349 Delhi General Overseas Service in English 1000 GMT 24 Mar 81 BK]

CSO: 5500

'HERALD' PUBLISHER JOINS COMPANY STUDYING CABLE TELEVISION

Auckland THE NEW ZEALAND HERALD in English 4 Mar 81 Sec 3 p 1

/Text/



Wilson and Horton Ltd, publisher of the New Zealand Herald, has bought an interest in a small company formed in 1972 to investigate the introduction of cable television to New Zealand — Cablevision New Zealand Ltd.

The other shareholders are J. Scott and Co Ltd, of Dunedin, Tolley Holdings Ltd of Wellington and Southlands Communications Ltd, formerly Southland Cablevision Ltd, of Canada.

J. Scott and Co is a timber importer and Tolley an electrical manufacturer, cablemaker and engineer.

Southlands Communications is one of the most experienced cable operators in Canada, having been involved in the burgeoning industry since its inception.

Wilson and Horton says it has been studying the growth of cable television in the northern hemisphere for a number of years and is aware of the technological changes which are now taking place.

More than 14 million homes in the United States and 4 million in Canada are now wired to cable television services.

Together with its partners in Cablevision New Zealand, Wilson and Horton adds, it will pursue the introduction of a cable system to this country following an evaluation at first hand of overseas systems.

The company believes, says a Wilson and Horton statement, that recent developments in satellite communications, the underutilisation of microwave transmission combined with a multi-channel cable system should become part of New Zealand's long-term communications strategy.

CSO: 5500

NEW TELEVISION TRANSMITTING TOWER PLACED IN OPERATION

Budapest NEPSZABADSAG in Hungarian 11 Mar 81 p 1

[Article by correspondent Gy. F.: "Kekes Transmitting Tower in Operation—Further Improvements in TV- and Radio Program Reception"]

[Text] It was in Feb 1958 that our first television transmitting tower was placed in operation in Budapest. (Six years ago this old tower was replaced by a new one.) Since that time Kekes, Tokaj, Komadi, Szentes, Miskolc, Pecs, Nagykanizsa, Kab-hegy and Sopron have also received transmitting towers. There has already been a tower in operation on Kekesteto since 1960; it, however, no longer has the capacity and has become obsolete to meet present needs. It is directly next to this tower—located at our country's highest point of elevation—where its successor has been built, together with an ancilliary structure. The new slender aerial tower, built by experts from POSTABER [Postal and Communications Investments], the State Construction Enterprise of Heves megye and KOZGEP [Highway Construction Machine Repair Shop], based on a service invention of UVATERV [Road and Railroad Planning Enterprise], reaches 1200 meters above sea level.

The monolithic reinforced concrete frontage of the almost 4000 m^2 ancilliary structure was built to withstand even the most severe of weather conditions. Here is where the transformer substations, i.e., facilities supplying the transmitting tower with electricity, are located featuring network-system protection, automation and phase-correcting equipment. The transmission rooms, monitoring rooms, laboratories and storage facilities are also housed in this structure.

Only the lower 80 meter section of the 180 meter-tall tower is made of reinforced concrete; the next 80 meters is built of steel, while the top 20 meter section is nothing more than a plastic cylinder reinforced with fiberglass, which serves to shield the smaller antennas used to transmit TV's second program from the effects of the weather. It took 1300 m^3 of reinforced concrete and a half a thousand tons of steel elements to build it. According to calculated figures this solution was considerably less costly than previous ones. Among the facilities already in operation it that equipment--products of the Precision Mechanics Enterprise--which serves as a link in the Eastern-Hungarian microwave chain to make possible the transmission and reception of TV programs to and from the Soviet Union and Romania.

The new structure will also perform some new functions which the old facility was not equipped to do: shortly the transmitting equipment used to relay the programs of Radio Kossuth, Radio Petofi and the third station of UHF waveband, will also be moved here. Today there are still two transmitters on Kekes broadcasting the first TV program: one is already operating in the new tower, while the other one, which is already 20 years old, is about to be replaced. In other news, the building of and aerial system--similar to the transmission facilities which were placed in operation at the end of last year in Sopron--for transmitting the second TV program, continues.

In addition to the ridge transmitters, there are presently as many as 41 low-capacity, so-called relay transmitters in our country--12 of which were placed in operation last year--which help to bring the first TV program to an increasingly larger area and to a growing number of people. Presently, 92 percent of our population living in 91 percent of our country's territory can receive the first program. We also have 7 relay transmitters which transmit the second program; this can be received by three-fifth of our population, living in 54 percent of our country's territory. Once the Kekes transmitting tower is in full operation this ratio will improve by an additional 10-15 percent.

The Kekes transmitter has also made it possible for 92 percent of our country's territory to receive the Kossuth program, for three-fourth to recieve the Petofi program and for 94 percent of hear the third station on UHF. Later these ratios will further improve with the construction of relay transmitters. This year all construction work on Kekesteto will be completed and the glass-fitted and open-terrace lookouts located at the 28 and 32 meter levels, and accessible by elevator, will be open to the public.

9379
CSO: 5500

ARGENTINA

BRIEFS

SOLAR ENERGY TELEPHONE LINK--Yesterday the National Telecommunications Enterprise (ENTEL) revealed that a telephone link between this capital and the national gendarmerie office in Barreal, San Juan Province, which is run on solar energy has been operating with satisfactory results for 5 months now. For this purpose a relay tower, provided with solar screens, was placed on the top of the El Tontal Mountain. [PY262122 Buenos Aires CLARIN in Spanish 3 Mar 81 p 8 PY]

THREE NEW REPEATER STATIONS--Posadas, 21 Mar (TELAM)--Posadas Governor Capt Ruben Paccagnini today inaugurated three FM radio repeater stations belonging to Lt 17 Radio Provincia de Misiones which will operate in Dos de Mayo, Bernardo de Irigoyen and Puerto Iguazy. The 5-kw repeater stations pick up the broadcasts of the main station and relays them through a local microwave system.[PY252230 Buenos Aires TELAM in Spanish 2250 GMT 21 Mar 81 PY]

RADIO STATION CHANGES CALLSIGN--Resistencia, 21 Mar (TELAM)--Col Eduardo Jorge Barbieri, interventor of the Federal Radio Broadcasting Committee, disclosed that Lt 5 Radio Chaco's callsign will be LRA 26 Radio Nacional Resistencia and that it will start operating on TEH 690 KHZ frequency. [Buenos Aires TELAM in Spanish 2030 GMT 21 Mar 81 PY]

CSO: 5500

SULTANATE OF OMAN

BRIEFS

TELECOMMUNICATIONS STATION--Muscat--A telecommunications earth station has been inaugurated in Musandam to provide telecommunications, TV and broadcasting services to the villages of the Wilayat. The station has 12 channels with a provision for increase. The RO1million project was completed within 5 months. [Text] [GF231426 Dubayy KHALEEJ TIMES in English 23 Mar 81 p 2 GF]

CSO: 5500

KENYA

BRIEFS

SECOND SATELLITE ANTENNA INAUGURATED--The minister for transport and communications, Mr Henry Kosgey, today opened the second antenna at the Longonot satellite earth station, on behalf of H. E. President Daniel Arap Moi. The second antenna has become necessary in view of a possible breakdown which would leave the whole of east African region in a state of telecommunications blackout. The Longonot station was originally built between 1969 and 1970, with one aerial pointing to the Indian Ocean satellite, at a cost of 30 million shillings. The new antenna will be linked to another satellite, over the Atlantic. [Excerpts] [LD271401 Nairobi Domestic Service in English 1800 GMT 26 Mar 81 EA]

CSO: 5500

FEDERAL REPUBLIC OF GERMANY

FINANCIAL, ECONOMIC PROSPECTS FOR CABLE TELEVISION

Hamburg DER SPIEGEL in German 9 Mar 81 pp 63-72

[Text] The vow of the Social Liberals was kept for a year and a half: For the time being, FRG households should not be linked up by a close-meshed cable grid. But last week the Liberals called for the lifting of the cable-laying freeze. If their argument is correct, could tens of thousands of jobs be created from this?

When John M. Lewis, president of the television station "Wometco" in Florida, looks at his volume of business, he knows what the customers want to see: Above all, many films, uninterrupted, uncut, uncensored--even when they entail stiff charges.

American TV addicts sometimes pay more than $40 per month, equivalent to over 80 marks, for the services of Wometco, which are offered over cable. "An upper limit," raves station chief Lewis, "does not seem to exist."

In the midst of that country's serious economic crisis, pay TV--commercial television--has become big business in America. With substantial unemployment and rising gas prices, apparently more and more Americans are remaining at home and killing time in the TV chair. About 15 million homes already have cable, and their number is to grow to 46 million by 1990.

Months ago, the economics journal ECONOMIST had spotted cable television as a growth industry: "Cable is big business."

But elsewhere? German businessmen--TV dealers and heads of electrical-engineering companies, set manufacturers and media managers--are looking at the American example with envy.

Up to now, the modern technology has been lacking in this country for the job of flooding the whole territory with television; the FRG would have to be covered by a network of new cables. But an all-out cable-laying had been rejected already by Federal Chancellor Helmut Schmidt in his government policy statement: Schmidt feared an "adverse effect on family life" from an additional supply of private stations.

In truth, it is probably more a question of power in the media. Because if only the cable lines with their manifold transmission possibilities were laid everywhere, then certainly the large media companies would also show up on the scene quickly, the Springers and the Burdas, the Holtzbrincks and the Bertelsmanns.

However, the chancellor's concern about the welfare of the family and his misgivings vis-a-vis the media groups are not likely to carry much weight for very long. On Tuesday of last week, the liberal coalition partner in Bonn unexpectedly demanded that the cable-laying ban be lifted. FDP Secretary General Guenter Verheugen stressed that the time was ripe for decisions on media policy.

The next day, at the weekly get-together of the coalition, the chancellor ill-humoredly asked about the unexpected sally on the part of the coalition partner. Schmidt: "Just what does this mean?" The chancellor said that he was concerned as much as ever that laying cables all over the Republic would lead to a glut of television programs.

In their opinion, explained Verheugen for the Free Democrats, the plan of the German newspaper publishers to participate in the Luxembourg scheme of commercial TV via satellite requires prompt decisions to be made right now. No longer can we wait, as planned, for the results from many years of operation of pilot projects.

"Cable," FDP interior minister Gerhart Baum is sure, "is coming in any case." It is all the more urgent, he says, to make political decisions with all due speed on what then will be transmitted into the citizen's home.

Baum's liberal cabinet colleague, economics minister Otto Graf Lambsdorff, has insisted for a long time that the postal administration should speed up the development of a modern cable grid. Billions, he said, are being held up in this area.

And meanwhile, along with Lambsdorff all the friends of commercial television are vociferously pleading the common economic welfare. "Tens of thousands of jobs" are being blocked because of the cable freeze, says Reinhard Mohn, a boss in the Bertelsmann concern. CDU media policy-maker Dieter Weirich is even more positive about it: At stake are "more than 100,000" jobs which are being precluded by "the irresponsible media blockade of the SPD."

Moreover, Otto Wolff von Amerongen, president of the Federation of Chambers of German Industry and Commerce, sees domestic inventive genius threatened. If German industry does not soon get into cable technology, there remains "merely the alternative of whether we will buy American or Japanese patent rights."

Meanwhile, more and more Social Democrats are also disassociating themselves from the cable decision of their chancellor. Thus, as early as last November the SPD minister presidents of the Laender, together with their CDU colleagues, had come to an agreement at the "Kronberg meeting" on the financing of "broadband communication."

But broadband communication means: New optical-fiber cables everywhere--and thus not only advanced telecommunications for trade and industry, but also the possibility of cable television. This possibility is to be tested in four pilot projects.

Even the economic experts of the SPD fraction in Bonn are now demanding, for the stimulation of business conditions, an "expansion of the communications network." And the trade unions themselves, in referring to rising unemployment, have given up their categorical "no" on cable television.

In fact, the enticement seems to be powerful. If all 24 million households were connected up to a nationwide cable grid, then the citizens would get delivered to them not only better pictures, but in the long run countless new programs as well. And first of all the wealth of pictures would have to be produced--in many new studios, with many new cameras.

Thereupon, it seems, a super-market would open up for industry. By means of cable, every living room could become a communications center, every business office could become an information headquarters. Connected up on a single line would be telex, telephone, and telefax, datatext and videotext, stereo programs and television programs.

The customers would also need--a desirable effect--many new devices: Adapters, decoders, projectors, recorders, and computers. Moreover, about 20 million obsolete TV sets would have had their day then, because by no means do they offer so many hook-up options.

About 50 million modern television sets would have to be purchased if every citizen in the FRG wanted to indulge in his individual TV preferences. German manufacturers are already inferring from American experiences that market saturation means: One set for each citizen.

But this grand vision of the future has a flaw: The cables cost a lot of money--above all, public money. And neither the minister for post and telecommunications nor the finance minister has billions at his disposal which are just waiting to be released eventually for investments in cable technology.

This year, the postal administration is putting more than 11 billion marks--entirely according to plan--into its distribution network. Here, no billions are being held back, says Juergen Kanzow in the Bonn Ministry for Post and Telecommunications, which is responsible for the new technology: "Really, we are investing as never before."

This is corroborated by Elmar Kaiser, executive secretary of the Cologne trade association "Cable and Insulated Wire," associated with the Central Association of the Electrical Engineering Industry: "In this area, truly nothing is being held up."

In fact, largely unnoticed by the public the Federal Postal Administration is investing its monopoly returns also in cable equipment for television, such as in Hamburg, Frankfurt, Nuernberg, Berlin, Muenster, Duesseldorf, Stuttgart, Ingolstadt, or Ulm.

In this connection, it is not even certain yet whether the zeal of the postal officials makes any sense at all. That is, the cables which have been laid up to now are considered to be technically obsolete--as far as their capacity is concerned, they do not yet provide the decisive breakthrough.

With the standard copper cable, the desired tele-communicating in all directions simply cannot be done. Wolfgang Weidhaas, product manager with the Cologne cable concern of Felten & Guilleaume, even goes further: "To introduce broadband technology now with obsolete cables--that is money down the drain." The cables now being laid may have to be replaced with new ones in a few years.

Because industry already has something better to offer: The optical-fiber cable, an extremely thin thread made of quartz, scarcely a tenth of a millimeter thick and much more transparent than optical glass or the air in a large city. Tests using light impulses have proved that up to 20,000 telephone conversations could be sent at the same time through a single fiber.

Such "light waveguides" are being practically tested at present in Berlin, Frankfurt, and Munich. In these places, the relevant electronic equipment is to be tested and improved above all.

Towards the middle of the decade at the latest, and possibly somewhat earlier--on this the technicians are in agreement--the optical-fiber system will be ready for large-scale use. For postal expert Kanzow, at least, it is certain that German industry is not at the tail end but "at the head of these developments, perhaps even one or two jumps in front."

Thus, the big business associated with the thin cable is certainly near at hand in Germany as well. Even if the price for a meter of glass fiber ultimately falls from the present 5 to 10 marks to below 50 pfennigs in mass production, inconceivable sums are involved nevertheless.

In order to connect up all households to the grid, the postal administration would have to lay over 100 million kilometers of cable--an expenditure of about 50 billion marks. The requisite equipment for the transmission technology costs another 50 billion marks.

Because the government agencies do not have this much money, the user will have to pay. For example, the large-scale experiments with cable television in Berlin, Munich, Dortmund, and Mannheim/Ludwigshafen will be paid for in the future by all the viewers in Federal territory by means of a surcharge of 20 pfennigs per month.

This will bring in about 50 million marks per year. Of course, in these four pilot projects the antiquated but somewhat cheaper copper cable is being used still. Strangely enough, experiences in the new technology are supposed to be gained by these means.

At the outskirts of Stuttgart, in Heumaden and Weilimdorf, the inhabitants have to pay even higher amounts, as is the case for all other areas where the postal administration is laying cables. Cables are to be laid in these areas for just under 2,500 dwellings, where hooking up to the cable grid will cost 400 marks, and moreover the monthly charges will also be increased by 5 marks.

The "New Media" commission of experts set up by the Stuttgart Land government estimates the actual capital expenditure per viewer at no less than 6,350 marks at least. It seems reasonable to suspect that State subsidies already are flowing into the cable grids right now.

In this connection, despite the high costs for its cable line, the postal administration is laying the cables only up to the so-called hand-over point--that is, to the basements of the cabled houses. Then the TV enthusiasts still must send for private electricians.

These workmen install repeaters and distributors, bore holes through the basement ceiling or string cords in the attic, leading them from there into the dwelling areas to new sockets through often already-existing shafts. All this work costs somewhere between 500 and 1,000 marks for a single-family house.

When finally all the cable lines are in place, then the television fan still needs a converter or a new television set. Because most of the older sets are not equipped for the "special channel bands" of the cable programs.

For the time being, the Germans could subscribe to additional programs from their neighbors in other countries. But that again costs money. Because cable customers are allowed to receive foreign programs also only against additional charges.

In particular the planned satellite program of Radio Luxembourg, in which German publishers would like so much to participate, will get expensive for the Germans. The requisite parabolic antennas, which are to receive the programs from space, alone cost 1,000 to 3,000 marks, according to industrial estimates--and large community antennas will cost as much as 10,000 to 20,000 marks. The launching of the Luxembourg satellites into space will require about half a billion marks--and all of these costs will be passed on by Radio Luxembourg to its advertising customers, which in turn will saddle the users with them.

Here at least the concern about the ostensible investment barrier reveals itself to be what it really is--to be a bluff.

Because whether the postal administration compulsorily collects the requisite money for cable TV's future through higher charges, or the State does so through taxes, whether the users pay voluntarily or are brought into the picture by way of increased advertising budgets of the producers--for the most part there exists a refraining from consumption in another area as a trade-off.

Whoever spends more money for television charges, video cameras, or video games is not any richer on that account. Unless he changes his savings budget, he spends less money, for example, for his vacation, for the home, or for clothing. In one industry new jobs are created perhaps, but in another they are eliminated because the demand contracts.

It is disputed whether Germany's TV viewers really need the "informational garbage" (Institute for Futurology) which is in store for them with cable television. On the other hand, even now this much seems certain: Additional jobs are not likely to be created by this new technology, or at least far fewer jobs than proclaimed by the cable propagandists.

Once more there is cheating going on with the reference to jobs. "The difficult labor-market situation," suspects Dieter Mertens, head of the Institute for Labor-market and Occupational Research in Nuernberg, "is being misused in political disputes."

12114

CSO: 5500

SUCCESSFUL SUBMARINE TV COMMUNICATION WITHOUT CABLE

Paris ELECTRONIQUE ACTUALITES in French 20 Feb 81 pp 1, 7

[Article by D. Levy]

[Text] Lac de Castillon. On 12 February Thomson-CSF gave a demonstration on the Lac de Castillon in the Basses-Alpes department of equipment providing continuous transmission by acoustic waves of television images taken at depths which can go down as far as 1,000 meters. This first industrial success will have applications in the field of surveillance of underwater structures using remotely controlled devices or manned submarines, particularly in the oil industry, and in any case in which the elimination of communications cables between the underwater and the surface equipment could offer considerable advantages. One such instance could be with drilling done from ships with dynamic anchorage. The research and development costs for the equipment amount to 3 million francs, jointly financed by the FSH [Hydrocarbons Support Fund], providing nearly 50 percent, by the IFP [French Petroleum Institute] (10 to 20 percent), and by Thomson-CSF (40 percent).

Of course, acoustic transmissions had existed before this equipment developed by Thomson-CSF, but it could only be used for slow-speed communications. The innovation provided in this case is a high-speed acoustic transmission capability, which of course includes a large data capability.

To demonstrate this principle, Thomson-CSF transmitted television images. The instantaneous images are recorded by a camera, placed in digital format, and placed in a memory unit (in a unit of 250 kbits in MOS modules of 4 kbits), then coded (in phase modulation) to eliminate the doppler effect, before being transmitted on an acoustic channel at 60 kHz, at the rate of 200 kbauds (or 10 seconds to transmit a 200,000-bit image). This speed is now being improved; it may be increased to 1 or 2 seconds and may even reach several 10ths of a second when the image is processed before transmission.

The method of acoustic transmission used is somewhat similar to the method used in communications with exploration satellites. Spatial filtering is done on the surface by the acoustic antenna in order to reduce the disruptive effects of parasitic noise coming from the ship or from multiple reverberations. The signals coming from under the water in a digital format are decoded and placed in a memory unit so that they can be continuously displayed on a television screen. The images are constantly renewed, with new data replacing older data.

Along with high-capacity transmissions, the equipment includes a transmission system for sending remote control orders from the surface to the seabed (stop/start, optical focussing, camera movements, etc.). This remote control acoustic channel operates at 18 kHz.

The technical problems which have been resolved by the developer were mostly related to the development of suitable transducers (optimized diagrams, large bandwidth: 20 kHz for a 60 kHz carrier), the miniaturization of the electronics placed on the seabed, and above all, the coding of the transmission.

A Market for 10 Units a Year

The possible applications for this equipment include the transmission of images or of any other data such as sonar images, telemetry data, etc., between a submerged device and several surface ships, between surface ships and submarines, or between submarines and equipment on the seabed. Oil drilling companies, the CNEXO [National Center for Exploitation of the Oceans], and naval research centers, as well as other organizations interested in eliminating communications cables between underwater equipment and the surface have shown an interest in this acoustic transmission system, which apparently has no equivalent anywhere in the world.

The first user will be Foramer, which will provide services to Shell in the area of underwater monitoring of wellheads, and which will use the equipment on a drilling ship with dynamic anchorage. This installation will be completed during the first half of 1981.

The use of this equipment could bring about considerable time-savings in oil exploitation. And one day of drilling costs about $95,000! This has led to a reasonable optimism on the part of the manufacturer of this equipment, which will sell for a price ranging between 400,000 and 500,000 francs. However, in the first phase, Thomson-CSF estimates its market to be about 10 units a year.

This high-capacity acoustic transmission equipment was designed and developed by the submarine activities division of Thomson-CSF. Its total cost is about 3 million francs. It was jointly financed by the FSH (nearly 50 percent), the IFP (10 to 20 percent), and by Thomson-CSF (about 40 percent). The IFP is also acting as technical adviser and as a link with the French oil companies.

7679
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CNET HEAD QUERIED ON TELECOMMUNICATIONS REVOLUTION

Paris LE COURRIER DU CNRS in French Jan 81 pp 5-13

[Interview with Maurice Bernard conducted by Monique Mounier: "Telecommunications"]

> [Excerpts] From basic research to daily application, telecommunications represent a true technological revolution. Maurice Bernard, director of the CNET [National Center for Telecommunications Research] explains to the readers of LE COURRIER DU CNRS what the "telecom" battle means to our country.
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> Maurice Bernard, a graduate of the polytechnical school with a PhD in science, and engineer general of telecommunications, is above all a physicist. As a researcher, he created and developed within the CNET, starting with the end of the 1950s, research teams in the field of solid state physics; his personal contribution covers a broad range in a field of semiconductors and optics-electronics. In 1961, assisted by his student Duraffourg, he was the first to develop the criterion which must be met by a semiconductor in order to create a "laser" effect. Maurice Bernard has repeatedly participated in the project of our national committee. He is a professor of physics at the Polytechnical School, the Higher Electronics Institute in Paris, and the Higher Electric Power School. As a physical engineer, he has been steadily promoting the technological use of our knowledge of solid state physics. For the past two years he has been the director of the CNET.

[Question] The field of telecommunications is in full swing in all industrialized countries. Where do you place France in this technological battle?

[Answer] France has good advantages: time switches, data transmissions and telematic terminals; in other sectors such as electronic components and production of electronic materials we must do some catching up, something which we have already extensively undertaken!

[Question] For a long time telecommunications were considered in France the "poor relative." Today they are the target of a priority program which make it the leading investor in the country. Telecontrol, satellites and optical fibers, all such progress seems to have been achieved suddenly. Actually, it is the result of many years of research. What role does the CNET play in this process?

[Answer] Let us take the telephone as an example. There have been two stages in the "righting" of the telephone in France: the first pertains to the accelerated supply of equipment for the country, largely based on the "time switch," initially developed by the CNET; the second is related to the development of teleautomatics, which is barely beginning.

How did this occur in practical terms? The purpose of the priority action program, approved by the president of the republic in 1975, was to put France as soon as possible in the leading ranks of the major industrial countries in terms of telephone equipment. Priority was given to production, i.e., to the number of new trunk lines to be installed every year. The figure rose from 300,000 annually in 1974 to 2 million as of 1978. This tremendous effort in the field of equipment resulted in the steady shortening of the average hooking time: currently it ranges from 6 to 7 months; in a few years it will be counted in terms of days.

The CNET played an important role as the result of previous research. The "time switch," which is one of the strong points of this progress, was developed almost simultaneously by the Bell Laboratories and the CNET, some 20 years ago. In France time switching was developed by Joseph Libois, Pierre Lucas and Andre Pinet, whose names are quite well known.

Gradually, the "time switch" became accepted internationally. Since 1978 it has been considered part of modern commutation technology. The initial research conducted by the CNET found a practical application: today, every year, a growing share of the millions of trunk lines installed in France is "temporal." France is the leading country in the world in terms of temporal lines in service. As a consequence, the French telecommunications industry, above all thanks to the French automatic switches, is beginning to conquer the international markets. This was one of the targets of the priority action plan.

France has also worked in the field of equipment by beginning to digitize its entire grid: it is one of the most advanced countries in the area of digitizing.

We, the researchers, consider this an accomplished target. The first stage of the priority action plan was successfully completed. No one doubts any longer its success. Let us now consider the second stage: what do we mean by teleautomatics? This word, recently coined by Simon Nora and Alain Minz, applies to a concept based on firm reality: the mutual and reciprocal interpenetration of telecommunications and the information industry. Information industry specialists have a growing need for either transmitting their data or processing them at a distance and, therefore, for the use of telecommunications. "Telecom" specialists are using information facilities to an ever greater extent, for computers have equal need for automatic switches as for transmission systems, management and traffic control systems, etc. This interpenetration has had important consequences. It was not accidental. It was due to recent technological progress, manifested in the past few years. This, if you wish, is the nutritive substance of teleautomatics.

Microelectronics, which is the motor element, telecommunications satellites, and optical fibers are the three major channels of technical progress which imply the use of teleautomatics.

Naturally, the CNET is fully participating in this technological revolution.

[Question] What is it that makes the CNET original and effective?

[Answer] The CNET is original in several respects. It is an interministerial agency, for a variety of sectors in the country are interested in telecommunications.

The CNET is under the jurisdiction of the General Telecommunications Office. The DGT [General Telecommunications Office] is a public enterprise employing 150,000 people with a turnover of 40 billion fixed value francs. It has major research requirements. The CNET accounts for a good share of the research for this public enterprise.

One of the original features of the CNET is its double mission. The first mission is that of "research and internal development" which deals with basic or applied research conducted in the CNET laboratories. Its purpose is to use new achievements of scientific progress and convert them into technical progress, develop an ever growing mastery of techniques and technology and develop materials and logic materials with a better performance. Its second mission is that of "technical expertise and assistance." The technical expertise mission is for the benefit of the DGT. It is thus that the Industrial and International Affairs Office, the DAII, contracts for close to 1 billion francs every year. The fulfillment of such contracts requires extensive technical expertise such as, for example, the definition and formulation of technical specifications, cost estimates, market followup, receiving prototypes, etc. The CNET is the only one which can provide this type of technical assistance. Technical assistance is also provided to the users: the CNET engineers instruct them in the use of new equipment.

These two missions are indivisible, for the quality of our technical expertise depends on our research. The orientation of our research depends on technical expertise which, in a way, polarizes "in advance" the direction of our research.

Therefore, the CNET must maintain and develop numerous and fruitful relations with the fields of basic, applied and industrial research.

Another factor of its originality is the relatively recent creation of program committees,* corresponding to the seven major areas of CNET activities:

/ * See sidebar "The CNET Program Committees."

scientific research, technology and components, distribution, commutation, transmission, new services and special services, general grid structure and technical management.

Each one of these seven committees has some 12 members, half of whom are CNET experts, while the other half consists of central administration experts. Every year a program committee receives suggestions from researchers, related to its area.

Each program committee formulates one or several program projects for its area; these "scenarios" are submitted to a management council for discussion and approval. The CNET management council is chaired by Jean Syrota, director of industrial and international affairs of the DGT. I am vice president. The council includes the CNET directors and the senior DGT service chiefs. The program committee is a place where discussions and exchanges of views are held involving programs, where results are assessed, and where, every year, the means available to the CNET in terms of personnel and funds are defined.

No study or research project may be dictated by a technocrat.

[Question] The "basic research," of the university type, and the "applied research," of the industrial type, discussion is a permanent one. The CNET is one of the rare agencies in which both activities are conducted on a parallel basis.

[Answer] It is true that in France we tend to link basic research to university activities while applied research is related to industrial activities; all too rarely does the university engage in industrial research and all too rarely do industrialists engage in "real research."

At the CNET we are in a good position to emphasize what appears to be, more and more, a defect in French society. Yes, we are specifically forced to engage in both types of research!

Our vocation is the "finalized " research, which would be largely applied. Our role is to develop the telephone, to develop teleautomatics, to develop less expensive and better performing materials and logic devices and to meet new needs. This is more related to the use of knowledge than to its acquisition.

Two years ago, when I was appointed CNET director, I noted that the personnel structures were not adequately adapted to the new tasks. The world is shrinking but, at the same time, the technical universe in which we live is expanding tremendously. The CNET cadre was 29-30 percent. My target, and the target set to me by the DGT and the government, is to raise it quite rapidly from 30 to 50 percent by trying to recruit the best researchers and best engineers. The CNET is and will continue to be what its researchers, engineers and technicians are.

How will this be achieved? We hope that a certain number of positions will be created every year. In 1980 we opened 80 jobs and we hope to have another 100 next year. I would like to recruit between 150 and 200 researchers per year for the CNET.

Above all, we would like to draw over researchers from the CNRS and the universities, and engineers and researchers from industry. I believe in the virtue of mixing. We have an open door policy, which is explicitly stated in the 16 January 1980 decisions passed by the Council of Ministers. For example, we shall be needing mathematicians far more than in the past; it is on this basis that we recently decided to set up an applied mathematics department. We would like to continue to hire physicists working in a variety of fields; we are even ready to accept theoretical physicists, including those working in the field of elementary particles, who would like to "play" with us in several areas. They might be surprised to see that the "telecoms" occasionally deal in abstract problems.

We need chemists, electronics experts, optical experts, and specialists in the sciences of materials and the humanities.

[Question] What are your hiring criteria?

[Answer] I would hire researchers who have proved through their publications and past experience in a scientific area that they deserve their reputation or fame based on objective foundations. They must have a spirit of innovation, which is generally acknowledged as a characteristic of scientific value. We need people who can engage in a dialogue and communicate. I would also like to find researchers with a creative talent, with an intellectual,a **thematic** mobility and, why not, a willingness for geographic mobility. It would be difficult to find all these qualities in an individual researcher but a group of researchers should possess such qualities.

[Question] The scientific activities of the CNET are particularly dynamic in two areas: space research and solid state physics. Some laboratories, working either jointly or associated with the CNRS, are among the best in the world. In your view, as far as the lines of research are concerned, how have these teams, these people, and the reasons for this success been achieved?

[Answer] The two areas you have mentioned, space research and solid state physics, are consistent with a CNET scientific activity which could be described as dynamic. The CNES is closely involved in such research.

Space research has a variety of aspects. This explains why we are associated with the CNRS in this matter. There is a strictly scientific aspect, which could be considered speculative, and which consists of acquiring a thorough comprehension of the various phenomena concerning the magnetosphere, space geophysics, planetary environment, etc. However, the mixed CNET-CNRS teams working on this topic are also perfectly able to engage in other complementary aspects of space research, conceptually or technically related; this would include, for example, the propagation of electromagnetic waves in the low atmosphere and even the upper atmosphere, for we are using satellites, and, more generally, space technologies.

Telecom I, which will be put into orbit with the Ariane rocket in 1983, for the DGT, is proof that the satellite telecommunications are part of our panoply of systems. Some 15 years ago the CNET had played an essential role in all the initial French space projects. Today the CNET is following the industrial development of Telecom I and is engaged in research on future second generation satellites.

Another dynamic area is physics of condensed environments. The laboratory in which most of our research in this area takes place is related to the CNRS; this provides the CNRS with increased "visibility" in this laboratory conducting interesting projects; it allows the CNET to have a scientific adviser in an area of great interest to us. Ever since William Schockley, solid state physics has become a subject of great interest in telecommunications. Today solid state physics is more complex and comprehensive than what it was 30 years ago. Many semiconductors whose qualities are still underutilized exist along with many other other different types of materials.

Other less well known areas are under active study by the CNET, particularly the recognition and synthesis of words. Allow me to draw the attention of your readers to the area of acoustics, in the broad meaning of the term. This area has been extensively updated. Acoustics is an extraordinarily active branch of scientific research and is showing the tendency of becoming a multidisciplinary area. It has totally outstripped the classical aspect of the study of vibrations. It deals with the physiological aspects on the sensory level and the level of the word-forming process. Attempts are being made to find methods for word synthesis based on a simulation of acoustical phenomena produced in the vocal chords and conduits. Good knowledge of physiology goes hand in hand with technical progress. One cannot engage in word recognition, in machine translation for example, without engaging in the advanced study of language structure. Acoustics is a fascinating multidisciplinary subject which is excessively ignored in France. Several groups are engaged in its study. The two which are best known among them are the Laboratory for Informatics for Mechanics and Engineering Sciences (LIMSI) of the CNRS in Orsay and the CNET team in Lannion.

Equally fascinating is work in a related area conducted by the Institute for Music Acoustics Research and Coordination (IRCAM). Here work is conducted in all languages, French in particular. Paradoxically, the work of the IRCAM is better known abroad, in the United States in particular, than in France. The fact that in the CNRS acoustics is not an entirely autonomous section does not contribute to the development of this discipline in France.

Another active area of the CNET is the structure of systems, modeling and operational research aimed at the development of the necessary tools for network planning.

Furthermore, we have major requirements related to the field of mathematics, hence the creation of our mathematical research department. We are hoping to recruit mathematicians, particularly those of the CNRS... Last year, the director general of Bell Laboratories told me that in the United States it was difficult to find specialists in some areas of mathematics and scientific information, in "computer sciences." In France we are perhaps better off than in America as the result of the good level reached in mathematical research. In this area we have possibilities which must not remain unused.

[Question] What is your view currently of cooperation possibilities between the CNET and the CNRS?

[Answer] These two agencies have been cooperating for quite some time. The CNRS and CNET managements have been regularly meeting twice a year on the highest level, since 1974.

Two laboratories provide examples of cooperation between the CNET and CNRS: the Center for Environmental Terrestrial Planetary Physics Research (CRPE), which is a laboratory jointly operated by the CNRS and the CNET, and the associated Electronic Physics and Components Laboratory (LA 250) of the CNET in Bagneux. Furthermore, for quite some time, there have been CNET representatives in the CNRS National Committee; as CNET scientific activities develop, the number of CNET representatives in the various commissions has been rising. Today they number about a dozen.

There are several types of collaboration. One of them is institutional. It is manifested through a series of activities such as collaboration in programming and in the exchange of researchers.

Collaboration in programming, achieved through the CNET-CNRS liaison committee, means that CNRS scientists can help us to define and direct our programs. Inversely, CNET engineers and researchers can help the CNRS in the orientation of their own programs. The participation of the National Committee in the GRECO, or "coordinated research groups," and in various activities favors such collaboration.

Furthermore, a consultative scientific committee, whose creation was requested by the Council of Ministers at its 16 January 1980 meeting, will be established soon. Within this framework, the CNRS will be able to use a CNET facility.

Collaboration through the exchange of researchers is very stimulating and enriching. I would like to see such exchanges of research personnel developed vigorously. We can provide some researchers with interesting topics, a different environment, a method for tackling problems and technical and technological means not found in the CNRS. We are convinced that we can offer CNRS researchers extensive opportunities in many fields.

We believe that if a researcher would like to work for the CNET on a permanent basis, an exchange for 1 or 2 years is frequently the best means for making up one's mind. Existing regulations make this possible. Since I would like to engage in extensive hiring, particularly of CNRS researchers, I am asking anyone interested to come and take a look at the CNET and consider the possibility of working for it for 6 months, 1 year or 2 years, in order to be thoroughly familiar with conditions before switching over!

inversely, telecom researchers or engineers could become part of the research "establishment." One of the best examples in this area is that of Michel Petit, chief telecom engineer, who is working as the scientific director at the CNRS in charge of earth, ocean, atmosphere and space sciences and as director of the INAG.

[Question] How do you work with industry in such an area as closely related to the development of the country's economy as telecommunications?

[Answer] Contacts with industry are as necessary as ties with the CNRS and the universities. We have always maintained contacts with French industry. The context, however, has changed. We are less concerned with industrial policy. We concentrate on research, innovation and technology. It is in these areas that we must continue our dialogue with the industrialists.

French industry has changed. Some 10 to 15 years ago, the French telecommunications industry was an area of a small number of highly specialized companies exclusively interested in the national market, with virtually no exports, operating more or less on a quota basis and maintaining permanent relations with administrations.

Today the situation is different. There is lively competition on both the international and national marketplaces. The French industrialists have been encouraged to export and their products are competitive.

Continuing the dialogue with our partners in industry and sharing our "know-how" are our basic objectives. Our research would come to an end and our objectives would not be reached were the results of our research to remain confidential. Our competence would have been put to poor use had our "output" been limited to publications and licenses without sharing our knowledge with the domestic industry.

In 1980 we sponsored for the benefit of French industrialists, in Lannion, a meeting on word synthesis and recognition; a meeting was held in Paris on semiconductor lasers. The number of such initiatives will be increased.

Our policy is to publicize what we have done and what we intend to do.

[Question] Do you also intend to promote the organization of enterprises?

[Answer] Yes. We are strongly encouraged by the government to do so. Initial attempts to promote the opening of enterprises took place in 1980. Others will follow. One swallow does not make a summer but, frequently, the first swallow inspires those who follow it.... Essentially, changing the mental habits within the CNET, as among other researchers, is a psychological matter. Practical measures have been studied, such as loans, technical facilities, free use of licenses for a certain period of time, instant help to an unsuccessful candidate, etc.

[Question] What are your targets for the Eighth Plan?

[Answer] They are ambitious. We expect important results in various areas.

By the end of the Eighth Plan, the Grenoble Center should be able to engage in advanced research in silicone microelectronics. We should have and will develop a leading world center.

Most certainly, relations between the CNRS and the CNET will be developed even further. The fame of the CNET as a world research center should be well established. This will be manifested, in particular, by numerous exchanges with researchers from countries throughout the world. The Grenoble laboratory is being developed precisely with this objective in mind.

We are planning to achieve some results in specific areas such as underwater cables made of optical fibers. In this case the knowledge of the CNET will provide the industrial ferment. This will be accomplished by French industry but with the extensive assistance of the CNET. I believe that the second generation of communications satellites will reach its development stage.

Toward the end of 1985 we shall see the use of the "digital" system by the users. We shall see the generalized use of an electronic directory and the public at large will begin to use teleautomatic equipment. Optical fibers will replace to an ever greater extent metal transmission facilities and the number of cities such as Biarritz using "Videomatic" cables will be increased.

[Question] "A Pioneering Area for France." This is the title of a chapter discussing the CNET in a research paper entitled "Building the Future." What are the opportunities of our country in the development of telecommunications systems within an international and regional or national framework?

[Answer] The ambition of the CNET is part of a more general ambition which is that of the French telecommunications industry. This means both research and development, which are the fundamental components required for the mastering of new technology. The fact that the DGT is opting, for example, for the development of an electronic directory within a short time, which will replace the printed directory, is symptomatic. It represents the beginning of a revolution. The fact that France is beginning to assume the lead in this type of innovation proves the existence of the ambition to establish the proper conditions for a national market and, therefore, to boost powerfully French industry in order to be able to tackle international markets. Let us not forget that all such activities go together. The moment French research and development is increased, and the moment the DGT undertakes the opening of new markets French industry is strengthened and can become more powerful, more aggressive and, therefore, a greater exporter. This will improve the French position.

[Question] Could new technologies contribute to the vitality of French language and culture?

[Answer] Culture and language? The only way to "defend" a culture and a language is to "attack."

The only type of defense of a civilization, culture or language is the dynamic type. The truly essential feature here is innovation. French culture and language will survive to the extent to which they will be able to make new contributions. If by the end of the Eighth Plan or of the 20th century we have become one of the most industrially and technologically powerful nations, French language and culture will fare well. I am convinced of this. Should we fail to meet the interrelated industrial, technological and scientific challenges we will have to continue to fight with our back against the wall if we are to preserve the vestiges of French culture and language.

One can only build on what one discovers.

[Question] Technical progress is infinitely faster than man's adaptation to suggested technological innovations. How important does the CNET consider the man-machine dialogue?

[Answer] We are facing today a circuit which will be converted into a teleautomatic circuit, i.e., we are facing the fact that the telephone will not simply remain an instrument used by Daddy. It will become the telephone of the children, a play telephone, and an intelligent terminal which will have far more uses than simply speaking or listening.

The moment you open a dialogue with a machine with a keyboard, which can project the image of its intelligence or give you the answer to a question, I believe that you are faced with something which is infinitely more complex and far more difficult to handle compared with a simple telephone or television set.

The man-machine dialogue leads us to the heart of the problem. Therefore, we urgently need researchers in the humanities, particularly researchers within the CNRS whom we are unable to interest in our problems... For example, vandalism, which is very costly, deserved the study of sociologists and psychosociologists; therefore, people became interested in the problem. In my view, however, sociologists should come to us on their own free will to discuss such complex matters. I am convinced that we could face them with a large number of fascinating topics.

Program Committees

Telecommunications Sciences:

- Science of materials; signals and systems; applied mathematics; information industry; communications and humanities; earth environment and electromagnetism.

Components and Technologies:

- Components and technologies in microelectronics; components and technologies in optical electronics; technology and characterization of optical fibers; passive and connecting components; quality of components.

Distribution:

- Telephone terminal; user electronics; development of cables and related materials; quality of local circuits; future supporting materials and multiple-service circuits.

Exchange center:

- Systems-related general studies; exchange system studies; general studies of the circuit (present and future); further systems development; systems changes; exchange specifications.

Transmissions Circuit:

- General transmissions studies; transmission center materials; guided transmissions; radio-electric transmissions; satellite transmissions.

Teleautomatic Services and Specialized Circuits:

- General study of services; mobile communications services; sound communications services; written communications services; videotransmissions; image communications services; data transmissions services; special services; enterprise telecommunications.

Circuits, Maintenance, Management:

- Circuit modeling and planning; infrastructure, energy, shielding; technical operations systems; management science; quality.

The Grenoble Microelectronics Center

The Grenoble Microelectronics Center was opened on 23 May 1977, as the result of the measures taken by the government to increase the national research and development capacity in the area of silicone microelectronics.

The area of Grenoble was chosen because of the university and industrial facilities which offered particularly favorable opportunities for the implementation of its mission.

The Center was given the assignment of promoting innovations which will enable the users to have in the years to come integral circuits which will be needed by French industry, particularly that of telecommunications, in order to be able to develop highest-performance equipment most economically. The innovational capability of the Center, which must serve national needs, should be such as to enable French industry to overcome its lagging by 1985.

Currently the Center employs about 200 people. As it develops its activities, by 1985 it will be able to employ almost 500.

As of now the activities of the research teams extend to the following areas:

- Development of circuits: the study of their design and the assembling of their structural elements;

- Microlithography: development of shielding and engraving equipment--research on increasing details (change in the direction of micronics and submicronics);

- Basic technological operations used in the manufacturing of integral circuits, such as ion implantation, laser beams or electron guns, new diffusion, oxidation, and plasma utilization methods;

- Modeling which interlinks characteristics of materials, technological operational parameters and properties of resulting electrical systems;

- Machines and automated equipment required for the manufacturing of circuits.

Since 1979 the research teams have submitted in these different fields over 20 original publications and acquired seven patents. They have participated in the main international colloquiums, congresses and seminars in the areas of microelectronics, thus contributing to the worldwide promotion of the Center's activities.

The National Center for Telecommunications Research

Created in 1944, the CNET is an interministerial organism for study and research administered by the office of the Secretary of State for post offices, telecommunications and broadcasting, and responsible to the general telecommunications office.

--permanent function: internal research and development, technical expertise and assistance on behalf of the administration of telecommunications;
--budget: Fr 545 million;
--personnel: 3,800 of which 2,000 are engineers and technicians;
--locations: the CNET is located in several regions: 2,000 people in the Paris area; 1,500 in Breton territory in Lannion since 1960; 150 people in Rennes in a building shared with TDF (Telediffusion de France), known by the name The Joint Center for Studies of Television and Telecommunications (CCETT); in Grenoble, a new laboratory begun at the start of 1981.

Also of note are the antenna studies at Turbie and the ionospheric stations in Terre Adelie.

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ICELAND

BRIEFS

MOST PARTIES BACK NORDSAT--"The proposal made by the ministerial committee anticipates that a final position on the Nordsat satellite be taken before the end of this year, and I think that this summit of the Nordic Council must finalize the matter," said Matthias A. Mathiesen, member of parliament and the chairman of the Nordic Council, in an interview with MORGUNBLADID yesterday. Mathiesen said he did not want to predict whether the ideas regarding the Nordsat satellite had sufficient following within the Council, but the opposition of many people in Denmark and Sweden was known. Three of the Icelandic political parties, the Independence Party, the Progressive Party and the Social Democratic Party have declared their support for the matter, but the People's Alliance has not taken a position yet. It is also unclear what the policy of the Icelandic itself is in the matter. Mathiesen said that in his opinion it would be very important to obtain a positive conclusion in the matter now. It might be said that the matter had peaked, and if no decision were to be made now, other possibilities would doubtlessly be explored. "But with regard to Nordic cooperation, both cultural and political, I consider this very important," said Mathiesen "and I want to emphasize in my speech at the opening of the summit in Copenhagen that the summit form a definite and positive policy in this matter." [Text] [Reykjavik MORGUNBLADID in Icelandic 1 Mar 81 p 32] 9583

INDEPENDENCE PARTY SUPPORTS NORDSAT--At their meeting this Monday, the parliamentary group of the Independence Party agreed to support plans about launching the telecommunication satellite Nordsat which has been under discussion for many years in all the Nordic countries. Matthias A. Mathiesen, chairman of the Nordic Council, said in an interview with MORGUNBLADID yesterday that the Nordsat issue would probably be the most discussed issue at the meeting of the Nordic Council that begins in Copenhagen in a few days and perhaps a decision about this matter could be expected. Mathiesen said that the issue of a telecommunication satellite for the Nordic countries had been on the agenda for a long time and frequent proposals concerning that. Mathiesen said that a proposal from the ministerial committee is now before the Nordic Council and, therefore, it would be natural for Icelanders to form a policy in the matter. It is expected that the intentions of the Nordic Council concerning this issue will emerge in a few days into the meeting. According to Mathiesen, thorough discussions about the matter have taken place within the Independence Party in recent years, and the final debate has led to a decision on Monday about supporting the issue. [Text] [Reykjavik MORGUNBLADID in Icelandic 19 Mar 81] 9583

CSO: 5500

STORTING PRESIDENT SEES INCREASED CHANCE FOR NORDSAT

Oslo AFTENPOSTEN in Norwegian 26 Feb 81 p 3

> [Text] "The political development for a Nordic radio and TV cooperation is more positive today than it was just 6 months ago," Guttorm Hansen, president of the Storting, said yesterday during the debate on Nordic cooperation. The president of the Norwegian Storting will also have occasion to open the debate as first speaker in the Nordic Council in Copenhagen next Monday [2 March], where the Nordsat question will be a central issue. Einar Førde, minister of church and education, pointed out that it is not very gratifying to contemplate the intensive development work that is being done on the TV satellite front in West Europe while the Nordic countries have not even managed to adopt a position on the matter.

In anticipation of the Nordic Council's session all next week in Copenhagen, the Storting yesterday discussed the situation surrounding cooperation across national boundaries in the Nordic countries. The Nordsat matter naturally enough came to the fore--although that matter has not been formally placed on the agenda for the meetings in Copenhagen. Lars Roar Langslet, of the Conservative Party, said that there is hope that in spite of everything it is a life-saving phase that we are going through, and not a burial ceremony.

The Nordsat matter has encountered unusually strong resistance in the other Nordic countries, especially Sweden and Finland. Langslet pointed out that satellite TV will be a part of people's everyday lives because of broadcasts from the European continent--and regardless of whether the Nordic area gets its own TV satellite. The cultural-philosophical discussions of whether are for or against TV satellites are no longer of any greater interest than a discussion of whether we should be for or against phonograph records, he said.

Einar Førde, minister of church and education, said that we must now count on both French and German programs becoming a reality several years before we ourselves can have an alternative of our own with transmission of programs from one Nordic country to the others. "Not only will we have French and German TV programs in our living rooms, but they will be received with parabolic antennas that are manufactured in Central Europe, when we ourselves had had great opportunities to produce them," said Minister Førde.

Guttorm Hansen (A [Labor Party]) hoped that this year would be used to think it over, so that a positive measure could be taken at the session in Oslo in 1982. There have been many disappointments in the course of the last 10 or 11 years, but if the childlike faith in a Nordic TV cooperation still holds, it is based on the belief that the Nordsat project still has a future, Guttorm Hansen said.

Rolf Fjeldvær (A) pointed out that if the Nordsat project is torpedoed, it will be a serious shipwreck for Nordic cooperation as well. This case is a good illustration of the fact that national interests take precedence over Nordic cooperation, he said. "The Swedes couldn't care less about a TV solution that covers the whole Nordic area, as long as they can get ahead with their own industrial plan, which as concerns TV is no solution for the Nordic area." Fjeldvær said there would be no great tension connected with the coming session in Copenhagen. "I believe that is characteristic of Nordic cooperation nowadays," he added.

Lars Korvald, parliamentary leader of the Christian People's Party, discussed the way the Nordic Council works, and said that it could be made considerably more efficient--in several respects. Each member's proposals set in motion an extensive bureaucratic work in all five countries. A precondition for getting rid of all the proposals that are advanced in the Nordic Council is for the governments on their side to take the matter of drawing up lines for Nordic cooperation seriously and come up with practical measures that can mean something, he asserted.

Johan J. Jakobsen, the Center Party's parliamentary leader, who was in charge of the discussion, expressed a belief that we are in a "waiting" phase in Nordic cooperation. "The history of Nordic cooperation is marked by a regular alternation between waiting phases and a heightened commitment," he emphasized. "Administering what already exists really amounts to a form of stagnation."

Rolf Hansen, minister of environmental affairs, who is also minister for Nordic affairs in the Norwegian government, warned against entertaining too great expectations of striking results in the short term. "A criticism of the current work based on such illusions fails by its own unreasonableness and also has a negative effect. If we build on expectations that cannot be realized, we can easily create the impression of a fiasco. And that is misleading when it comes to describing the current Nordic cooperation," Minister Rolf Hansen insisted.

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PRIVATE INDUSTRY MAKERS OF TELECOMMUNICATIONS WANT ROLE

Oslo AFTENPOSTEN in Norwegian 17 Feb 81 p 32

[Article by Per Stormfelt, secretary general of the National Office Machine and Computer Association]

[Text] On the industry page of AFTENPOSTEN for 6 and 9 February there were three items concerning the Telecommunications Agency's Telefax service and the relation between the Telecommunications Agency and private suppliers of facsimile products.

In a couple of these items there were references to our association, the National Office Machine and Computer Association, and since this association represents the private suppliers, we should like to add some comments to the information that has been published.

It is a known fact that the Telecommunications Agency tried to get a monopoly on the sale of so-called Group 2 apparatus (3-minute apparatus) in Norway. The Storting, however, decided that the Telecommunications Agency should sell such apparatus in competition with private suppliers, who in any case have been selling Group 2 apparatus in this country for 2 years.

From several quarters in the Telecommunications Agency statements came out to the effect that the Telecommunications Agency felt that it was inspiring to have a service for which they could compete with others.

We can say that the private suppliers also set store by getting to have the Telecommunications Service as a competitor. Our disappointment was all the greater, therefore, when it became clear what line the Telecommunications Agency was taking on the catalog question. A charge of 540 kroner a year will be made to users of equipment from private suppliers. The Telecommunications Agency's chief information officer said in his article of 9 February that this amount is intended to cover the catalog expenses. A calculation done by private suppliers shows that such a catalog can be administered, produced, and distributed for about one tenth of what the Telecommunications Agency is demanding. We have learned that, e.g., the Danish Telecommunications Agency estimates a one-time cost of 100 Danish kroner per catalog.

We still choose to believe that there is an arithmetical error on the part of the Telecommunications Agency. If not, that charge must be regarded as an attempt on the Telecommunications Agency's part to get a competitive advantage, and that, as far as we can tell, is not in line with the Storting's intentions.

If the charge is not reduced considerably, the KDL [National Office Machine and Computer Association] will consider getting the private suppliers to issue a catalog of their own containing all facsimile users in this country. It may include a larger number of users than the Telecommunications Agency's catalog.

That is the line our Swedish sister organization has followed. We hope, however, that it will not be necessary to take that step. The best solution for all must be for one catalog to be issued, covering all users of telephonic copying.

The Telecommunications Agency's type approval is also touched upon in a couple of the aforementioned newspaper items. It is asserted by the Telecommunications Agency that "nobody has found reason to complain of the elecommunications Agency's work in type approvals of facsimile apparatus."

The KDL does not agree. What we should like to point out is that it is wrong in principle for one of the suppliers in a competitive market to approve the other suppliers' products before they are put on the market. The situation has now become different from what it was earlier, when the Telecommunications Agency either had a monopoly of sale of equipment or left the private suppliers to compete among themselves without the Telecommunications Agency's participation.

For the first time the Telecommunications Agency is to compete on the subscribers' equipment market for a service. It is probable that the same principle will be used as a basis for others of the Telecommunications Agency's future offers of services. In our opinion it is therefore of great importance that organizational modifications be instituted that will ensure that the competition takes place on as equitable a basis as possible for all parties.

One step in the right direction would be to effect a separation of the Telecommunications Agency's function as state decision-making authority for approval of equipment on the one hand and as a business organization on the other.

The work of standardization, together with approval and control of equipment, could for example be carried out by an agency with functions corresponding to those which NEMKO [expansion unknown] has for electrical equipment.

A separation of the Telecommunications Agency's different functions would also afford possibilities for a more correct allocation of resources, costs, and revenues and thus create a better basis for the conduct of the Telecommunications Agency's business activity.

These questions will be commented upon in more detail by the KDL when we submit to the Ministry of Transport and Communications our comments on the Telecommunications Agency's long-range plan.

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ROLE OF SATELLITES IN TELECOMMUNICATIONS AGENCY

Oslo TELEKTRONIKK in Norwegian No 1, 1981

[Article by N. Grimsmo]

[Text] A telecommunications satellite is, in principle, a repeater station such as we know it from the radio communications technology, with the difference that the station is placed in a geostationary orbit. In this orbit, the satellite will have an approximately fixed position in relation to the earth and may provide telecommunication between all points within an area covering nearly 40 percent of the entire surface of the earth, irrespective of distance, climate, and topography.

It is now 15 years since Early Bird, which was the first telecommunications satellite of the INTELSAT system, was put into service. The pioneer period is now drawing to a close, and we experience that telecommunications satellites are being put into service to a steadily increasing extent and in new areas within the field of activities of the Telecommunications Agency.

In one area, the satellites are still special. The costs of launching are big, and the satellites cannot yet be maintained in the usual sense of the word. The advantages of starting using new technology to achieve savings of weight and increased reliability in operation are, therefore, very great. This requires vast research efforts and techniques which are on the borderline of what is technologically possible. That is one of the reasons why a number of high-cost-level countries in the industrialized world have chosen satellite communication and the fields of activities belonging to it as a potential area in which to concentrate their efforts, seen from an industrial point of view. In Norway, we are now working rather determinedly on the development of an earth station industry, and two earth stations for the Norwegian telecommunications network have already been supplied/contracted for from Norwegian industry.

INTELSAT

As far as the Norwegian Telecommunications Agency is concerned, it all started with the international telecommunications satellite organization INTELSAT, which was established permanently in 1973 after having operated on a temporary basis since 1964. It has its headquarters in Washington, D.C. The Norwegian

Telecommunications Agency owns a share in INTELSAT of approximately 0.5 percent and together with the other Nordic countries forms a group of shareholders which gives the right to a joint representative on the board. The repr sentation on the board rotates among the Nordic countries.

In 1969 the Nordic telecommunications agencies decided to build a joint Nordic earth station at Tanum in Sweden. This was the first major breakthrough in the Nordic telecommunications cooperation.

The said earth station is now used for intercontinental telephone and telex communications and also transmits TV programs. The satellites are owned and operated by INTELSAT and provide global coverage, with the exception of the polar areas.

NORSAT

The development of our own Norwegian telecommunications satellite system for the oil producing activities was a direct result of the competence and experience which we gained through the work with INTELSAT and the construction of the earth station at Tanum. The telecommunications satellite system was named NORSAT.

NORSAT was established on 7 July 1976 for the main purpose of providing good communications between the mainland and the oil installations in the North Sea. The main station of the system was located on Eik in Rogaland, which the Norwegian Telecommunications Agency operates and for which it has the owner responsibility, whereas the other stations (outstations) are located on fixed production platforms and are owned and operated by the oil companies.

Also here we use an INTELSAT satellite in that we rent half a transponder (18 MHz) of the remaining capacity in the Atlantic Ocean or the Indian Ocean.

Svalbard

As part of the development of the NORSAT system, it was natural to look into the possibility of connecting a large and important outpost in Norway, viz. Svalbard, to the telecommunications network. And, on 19 December 1979, we opened the earth station on Svalbard which will now provide this group of islands with automatic telephone and telex communications to the mainland. This also implies that the Norwegian Telecommunications Agency will gradually be taking over the telecommunications activities on Svalbard as is being done on the mainland and which have so far been covered primarily by Store Norske Spitsbergen Kullkompani A/S [the Large Norwegian Svalbard Coal Company Inc.]. Work is now in progress to organize Svalbard as an independent telecommunications area as of 1981.

INMARSAT

Satellite communication has now also fully entered the maritime field. The Norwegian Telecommunications Agency is today the fourth largest shareholder in the maritime satellite organization INMARSAT (with approximately 8 percent). And to follow up our traditionally strong position in this market, consisting of the Norwegian and the international merchant fleet, we decided last year to build a joint Nordic maritime earth station on Eik in Rogaland, which, incidentally, will be supplied by Norwegian industry, subject to full international competition.

As a link in this engagement, we are now also working on offers to INMARSAT for the provision of services involving the channeling and surveillance of communications via the satellites from the earth stations on Eik for a fixed annual rent.

ECS (European Communications Satellite System)

Europe has, for many years, been endeavoring to establish contact with the United States in the field of space technology and not least within the field of telecommunications satellites. Much of this activity has been taking place under the direction of the European Space Organization ESA.

In 1970, the European telecommunications agencies were requested to participate in a telecommunications satellite cooperation where the experience and technology resulting from this research could be put to use. Calculations showed that a European telecommunications satellite system would result in savings to all parties involved, larger to the countries located on the outskirts of Europe and smaller to those which are centrally located and which make transit profits on the earth-bound network today.

We, in Norway, strongly advocated such a cooperation, and today we are members of the European Communications Satellite System EUTELSAT, which will own and operate the European communications satellite system ECS.

Also here we shall, to begin with, be using a joint Nordic earth station which will be located outside Stockholm. In the future, when the communications basis becomes larger, the construction of our own station in Norway may become topical. Such an earth station will have to be located in the vicinity of the area where the concentration of telecommunications is heaviest and will probably have to be located somewhere in East Norway. As a precursor of ECS, ESA has launched the experimental satellite OTS, and the Norwegian Telecommunications Agency is working actively on experiments with transmissions via this satellite.

NORDSAT--(or NORWEGIAN SAT)

Also in the area of broadcasting, satellites have become extremely topical. While direct transmission broadcasting satellites not many years ago were advanced studies presented at research seminars and similar places, they have today entered into the planning process both with telecommunications and broadcasting companies in industry. NORDSAT is well known and needs no introduction here, but the fact that we in the Norwegian Telecommunications Agency in cooperation with the other Nordic countries have managed to elucidate and evaluate such a project is quite an indication of what has been happening in the course of just a few years, and the strength which it is to an enterprise such as ours to be backed by its own and strong development and research department. In a following article in this issue of TELEKTRONIKK on the future perspectives, we shall discuss the new possibilities which will be opened up to this technology in the years ahead, and it is not entirely inconceivable that satellite communication may become equally important to the telecommunications network in Norway in the eighties as radio communications technology was in the mid and late sixties.

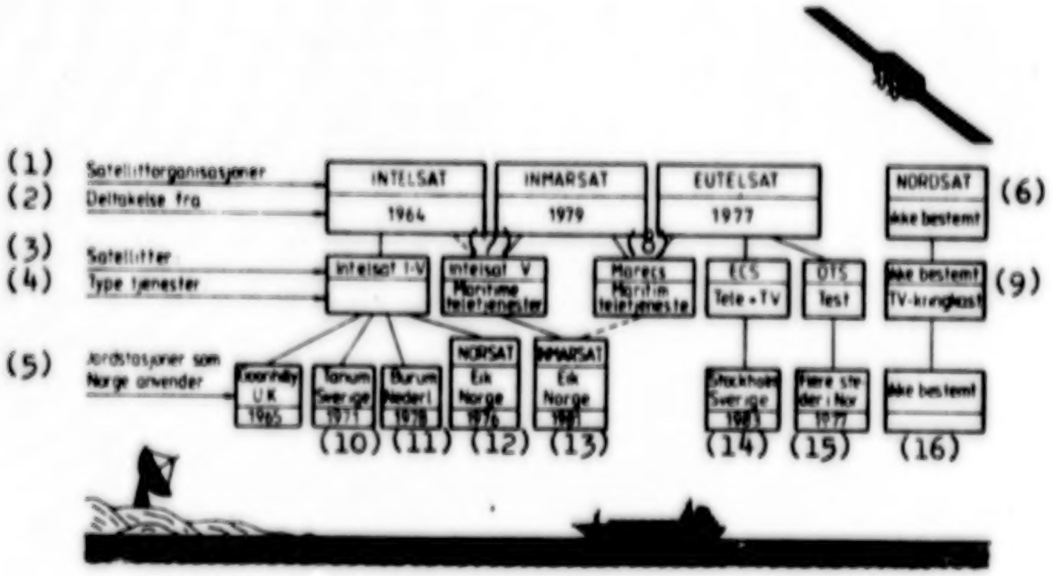

Figure 1. Relationship Between Satellite Organizations in Which the Norwegian Telecommunications Agency Participates

Key:

1. Satellite organizations
2. Participation from
3. Satellites
4. Types of services
5. Earth stations used by Norway
6. Nordsat, not determined
7. Intelsat V, Maritime telecommunications services
8. Marecs, Maritime telecommunications service
9. Not determined, TV broadcasting
10. Tanum Sweden 1971
11. Burum Netherlands 1978
12. NORSAT Eik Norway 1976
13. INMARSAT Eik Norway 1981
14. Stockholm Sweden 1983
15. Several places in Norway 1977
16. Not determined

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BRIEFS

NEW SATELLITE ANTENNA--The Nordic Industrial Union has had a joint Nordic research project going for several years with the aim of developing useful antenna models. What is involved is an antenna with electronic equipment such that it can bring in satellite transmissions in a frequency range in which television producers naturally process the signals further. The project has gotten far enough that the individual components of the antenna prototype have been developed and put together, and testing is about to begin. The practical tests will be done on local test senders that are exposed to great climatic variations. Civil engineer Olav Bakken, who is on the board of directors of the project, tells AFTENPOSTEN that he assumes that such a type of antenna will be priced about the same as a color TV. Probably it will be more expensive to begin with, and somewhat cheaper later on. The antenna prototype that is being developed is counted on to be put into mass production. The firm of Luxor in Sweden is working on plans for such production, and it remains to be seen whether Norwegian producers will invest in such a possibility. [Text] [Oslo AFTENPOSTEN in Norwegian 12 Mar 81 p 20] 8815

SATELLITE ANTENNA BEGINS TESTS--A 4-meter dish antenna, or "parabolic antenna," for reception of satellite TV was installed Friday [10 March] on the roof of the firm of Janco Electronic A/S [A/S = Inc.]. The firm is now supplying Norwegian TV and Swedish TV 1 and TV 2 to 65,000 households in the Oslo area via cable from the "mother antenna" on the Grefsenkoll. Asbjørn Stenerud, vice president in charge of development at Janco, tells AFTENPOSTEN that replies are expected in the near future to concession applications to the Telecommunications Directorate and the European Space Agency (ESA)--which owns the OTS [Orbital Test Satellite] --for permission to receive transmissions from it. They will be primarily French broadcasts. "The reason we have installed the antenna now is that we want to get the necessary experience in regard to the mechanical equipment and viewing conditions in case we later get permission to send out programs over the cable network," says Stenerud. For the time being it is a matter of purely experimental activity, he emphasizes. [Text] [Oslo AFTENPOSTEN in Norwegian 14 Mar 81 p 20] 8815

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